

# Claims

- [c1] 1.A computer implemented method for generating a plurality of bit maps suitable for high-speed printing, comprising the steps of:
- (a) providing a print specification, the print specification defining at least one variable data area and at least one static data area, and the print specification further defining at least one graphic state associated with the variable data area, the graphic state including at least one attribute controlling the appearance of items to be printed in the variable data area;
  - (b) providing a plurality of variable data items;
  - (c) processing the print specification, and during the processing step, identifying the variable data area and the graphic state associated with the variable data area;
  - (d) retrieving a variable data item from the plurality of variable data items;
  - (e) generating a bitmap for the variable item, the generating step including a step of applying the graphic state associated with the variable data area to the variable data item; and
  - (f) repeating steps (d) and (e) for remaining variable data items in the plurality of variable data items, whereby the

graphic state associated with the variable data area is applied repeatedly to generate a plurality of variable data bitmaps.

[c2] 2.The method of claim 1, wherein the variable data area and the static data area are defined, at least in part, by page description language commands.

[c3] 3.The method of claim 1, further comprising a step of caching the graphic state associated with the variable data area.

[c4] 4.The method of claim 1, further comprising a step of caching a representation of the static data area, whereby the cached representation of the static data area is available for merging with the variable data bitmaps to generate merged documents.

[c5] 5.The method of claim 4, wherein the cached representation of the static data area is a bitmap representation.

[c6] 6.The method of claim 1, wherein:  
the plurality of data items are associated with a field name; and  
the step of identifying a variable data area includes the step of detecting, in the print specification, a character string associated with the variable data area that matches the field name associated with the plurality of

data items.

- [c7] 7.The method of claim 6, wherein the plurality of data items and the associated field name are contained in a file external to the print specification.
- [c8] 8.The method of claim 1, further comprising the steps of:
- (i) generating a bitmap of the static data area;
  - (ii) caching the bitmap of the static data area; and
  - (iii) following or during step (e), merging the bitmap of the variable data item with the bitmap of the static data area;
- wherein step (iii) is repeated with steps (d) and (e) in step (f).
- [c9] 9.A computer implemented method for generating a plurality of bit maps suitable for high-speed printing, comprising the steps of:
- (a) providing a print specification, the print specification defining at least one variable data area and at least one static data area;
  - (b) providing a plurality of variable data items;
  - (c) identifying the variable data area;
  - (d) associating a graphic state with the variable data area, the graphic state including at least one attribute controlling the appearance of items to be printed in the

variable data area;

(e) retrieving a variable data item from the plurality of variable data items;

(f) generating a bitmap for the variable item, the generating step including a step of applying the graphic state associated with the variable data area to the variable data item; and

(g) repeating steps (e) and (f) for remaining variable data items in the plurality of variable data items, whereby the graphic state associated with the variable data area is applied repeatedly to generate a plurality of variable data bitmaps.

[c10] 10.The method of claim 9, wherein the graphic state associated with the variable data area is defined within the print specification.

[c11] 11.The method of claim 9, wherein the graphic state associated with the variable data area is defined external to the print specification.

[c12] 12.The method of claim 11, wherein the graphic state defines a justification setting of items to be printed in the variable data area.

[c13] 13.The method of claim 11, wherein the graphic state defines vertical alignment of items to be printed in the

variable data area.

- [c14] 14.The method of claim 11, wherein the graphic state defines a wrapping algorithm for flowing items in the variable data area.
- [c15] 15.The method of claim 9, wherein the variable data area and the static data area are defined, at least in part, by page description language commands.
- [c16] 16.The method of claim 9, further comprising a step of caching the graphic state associated with the variable data area.
- [c17] 17.The method of claim 9, further comprising a step of caching a representation of the static data area, whereby the cached representation of the static data area is available for merging with the variable data bitmaps to generate merged documents.
- [c18] 18.The method of claim 17, wherein the cached representation of the static data area is a bitmap representation.
- [c19] 19.The method of claim 9, wherein:  
the plurality of data items are associated with a field name; and  
the step of identifying a variable data area includes the

step of detecting, in the print specification, a character string associated with the variable data area that matches the field name associated with the plurality of data items.

[c20] 20.The method of claim 19, wherein the plurality of data items and the associated field name are contained in a file external to the print specification.

[c21] 21.The method of claim 9, further comprising the steps of:

- (i) generating a bitmap of the static data area;
- (ii) caching the bitmap of the static data area; and
- (iii) following or during step (f), merging the bitmap of the variable data item with the bitmap of the static data area;

wherein step (iii) is repeated with steps (e) and (f) in step (g).